

Getting Started Manual

letATwork Evaluationboard for Atmel ATmega 103, including free Development Tools for Linux and Windows



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Many thanks for purchasing the letATwork Evaluation Board.
You are now prepared to start developing easily. The board is build
with respect to a fast and easy start-up for your projects.

If you need further support please contact your dealer or optiCompo
directly under:

Phone: +49 331 7404513

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This manual describes only the basic procedures to get started with
the board. For more information about special compilers like AVR
Basic / Pascal or Third Party C compilers please consult the
Homepages or Sales Offices of the respective manufacturers.

Some interesting Internet Links are:

AVR GCC (Gnu C Compiler port for Win)	free	http://8bit.at/avr
AVR Tools (Gnu C, Tools for Linux)	free	http://medo.fov.uni-mb.si/mapp/uTools/index.html
AVR Informations (German Language)		http://www.ckuehnel.ch/
AVR Forum (English)		http://www.avrfreaks.net/
AVR Basic Compiler	com	http://www.mcselec.com
AVR C Compiler	com	http://www.imagecraft.com/
AVR C Compiler	com	http://www.iar.com

Unpacking

You get the following items with the letATwork Evaluation Board:



1 x letATwork Starter Board



1 x parallel ISP Programmer
incl. cable



1 x letATwork Atmega 103 micro
board (3.6864 Mhz Version)



1 x Programm CDROM incl.
GNU C for Win/Linux and
Flash Programming Tools

Note:

Before you start you will need an additional DC Power Adapter (9-15 V and min. 300 mA). We don't supply it with respect to the worldwide differences.

Software Installation

Before you start to develop applications with the Atmega 103 microboard you will need to install the ISP programmer software.

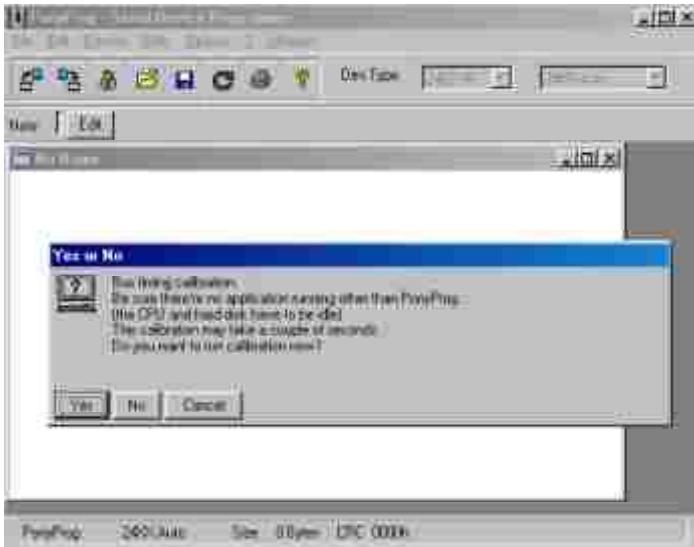
If you use IDE based compilers like AVR Basic or Imagecraft C you can skip the installation of Ponyprog. In these cases the programmer software is inbuilt to the Development Environment.

But if you use GCC or AVR assembler you need an AVR Flash Programming software like the free Ponyprog (by Claudio Lanconelli - <http://www.lancos.com/prog.html>). We downloaded it already for you, please insert the optiCompo CDROM and look at the directory:

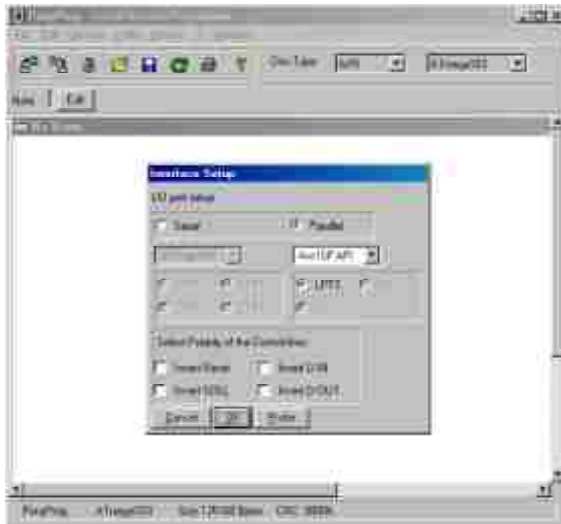
```
/ponyprog/<your operating system>
```

To install Ponyprog please follow the specific instructions of the program installation procedure.

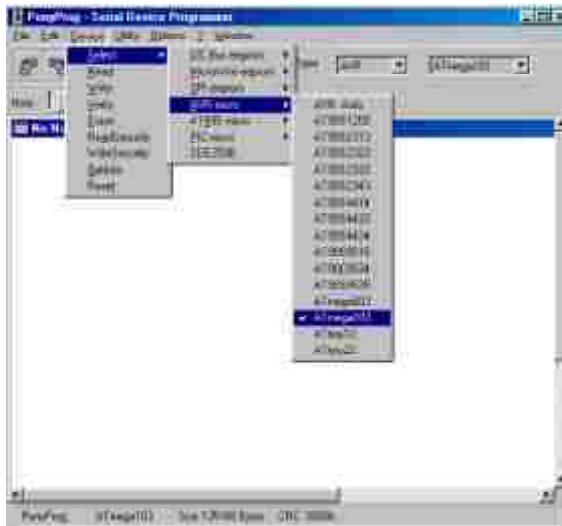
When you start Ponyprog for Windows the first time, please go to Options/Calibrate Menu to calibrate your computer.



Now you can go to the Options/Setup Menu and select Paralell Mode with AVR ISP I/O.



Connect the parallel ISP Programmer to the LPT port of your computer and click the Probe button. If everything is ok you see 'TestOK' . Now select the Atmega 103 in the Device/Select/AVRmicro menu.



The Program is now prepared to write / read / verify the Atmega103 Flash Processor on the letATwork microboard.
Ponnez

Installing GCC C-Compiler for Windows

If you like to start cost-effective in the AVR C world the GCC is the best choice because it is free.

95,98,ME,NT,2000 (INSTALL.TXT):

```
*****
I. Installing the GNU AVR-GCC Cross compiler:
*****
```

1. mkdir c:\gccavr
2. Copy the following files from the CDROM to c:\gccavr :
 - 1.) \Gnu-C\Gcc_windows\avrgcc.zip
 - 2.) \Gnu-C\Gcc_windows\instfix.zip
 - 3.) \Gnu-C\Gcc_windows\gcctest.zip
3. cd c:\gccavr
4. Unzip all files to c:\gccavr in the order given above.
The content of the folder should look like this:

```
<DIR>      .
<DIR>      ..
<DIR>      avr
          3.600.249 avrgcc.zip
<DIR>      bin
<DIR>      doc
          29.950  gcctest.zip
<DIR>      gcctest1
<DIR>      gcctest2
<DIR>      gcctest3
<DIR>      gcctest4
<DIR>      gcctest5
<DIR>      gcctest6
<DIR>      gcctest7
<DIR>      gcctest8
<DIR>      gcctest9
<DIR>      include
          47.616  install.exe
          1.809  install.ini
          21.199 instfix.zip
<DIR>      lib
          416   readme.txt
          365   run.bat
```

5. Run install.exe (double click)
6. If you get no error, please run in a new shell (MS-Dos prompt) run.bat

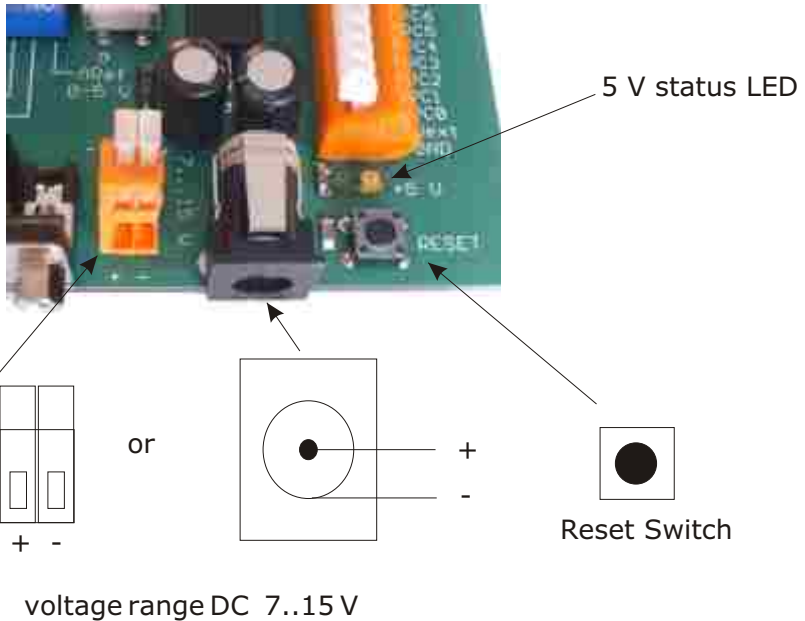
!! Every time you use the gcc tools (like make, gcc) in a NEW Dos-shell, you have to start run.bat first to set up the environment path variables.!!

7. Now you can use the make tools in the current shell for example:
 - 7.1 cd c:\gccavr\gcctest1
 - 7.2 make clean
 - 7.3 make

If all went well you find a gcctest1.rom file for your ISP programmer. Go to Ponyprog, load the rom file and write the demo program into the Atmega Flash. Connect LEDs to PortB (PB) and see the result of gcctest1.c .

Power Supply , status LED and RESET

You have two possible connector types to supply the board with power.

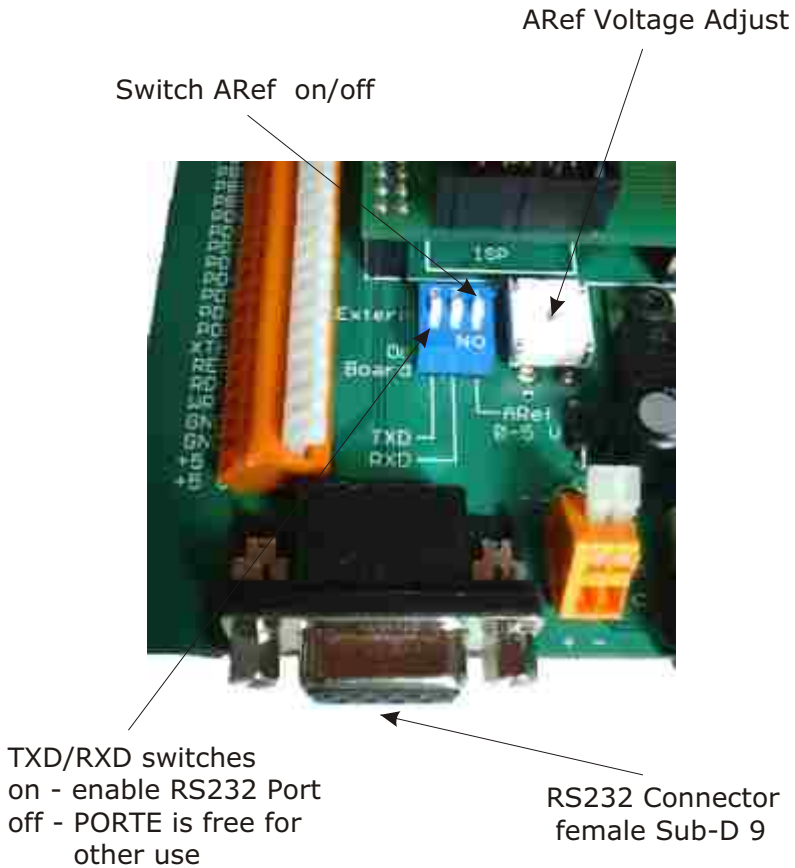


I/O Ports

The ports PA , PB, PC, PD and PE are the standard IO ports of the ATmega 103. Please refer to the ATmega 103 datasheet for further information about the special functions.

Analog to Digital Input and Aref

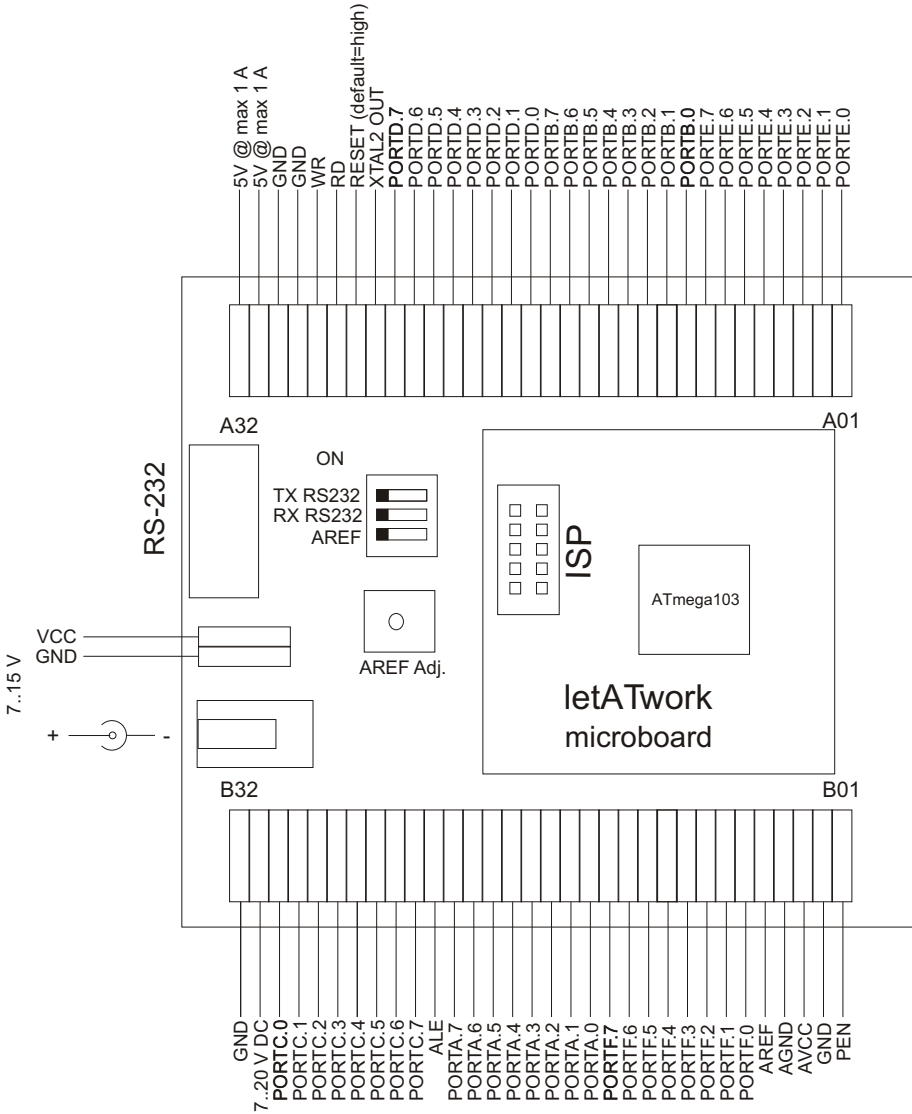
The port E (PE) is a Digital Input or Analog Input Port. You can enable the reference voltage of the AD-converter with the ARef DIP switch. Using the ARef potentiometer it is possible to adjust the reference voltage. It can be measured between AREF and GND.



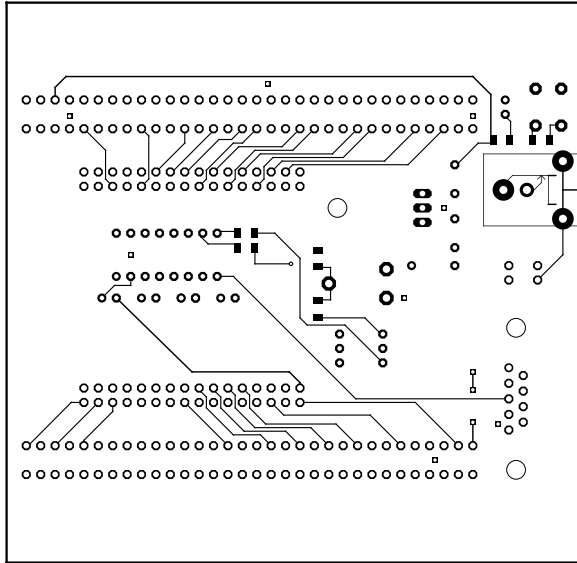
RS232

The Evaluation Board has an inbuilt RS232 interface chip. So it is easy to connect your computer. The Sub-D 9 connector is PC-standard and adaptable with a standard serial port cable. The RS232 connection is based on the ATmega Port Pins PE0 and Pe1. If the TXD/RXD switch is on you can use the Rs232 Port (in this case you can't use the PORTE Pins 0 and 1).

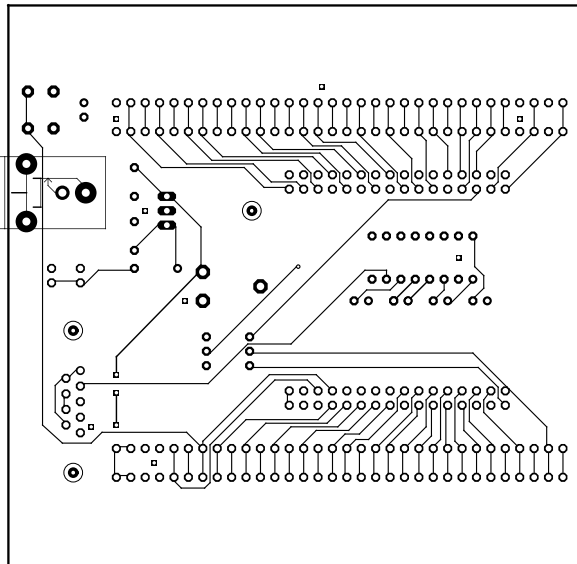
Evaluation Board / top view



Evaluation Board / Layout

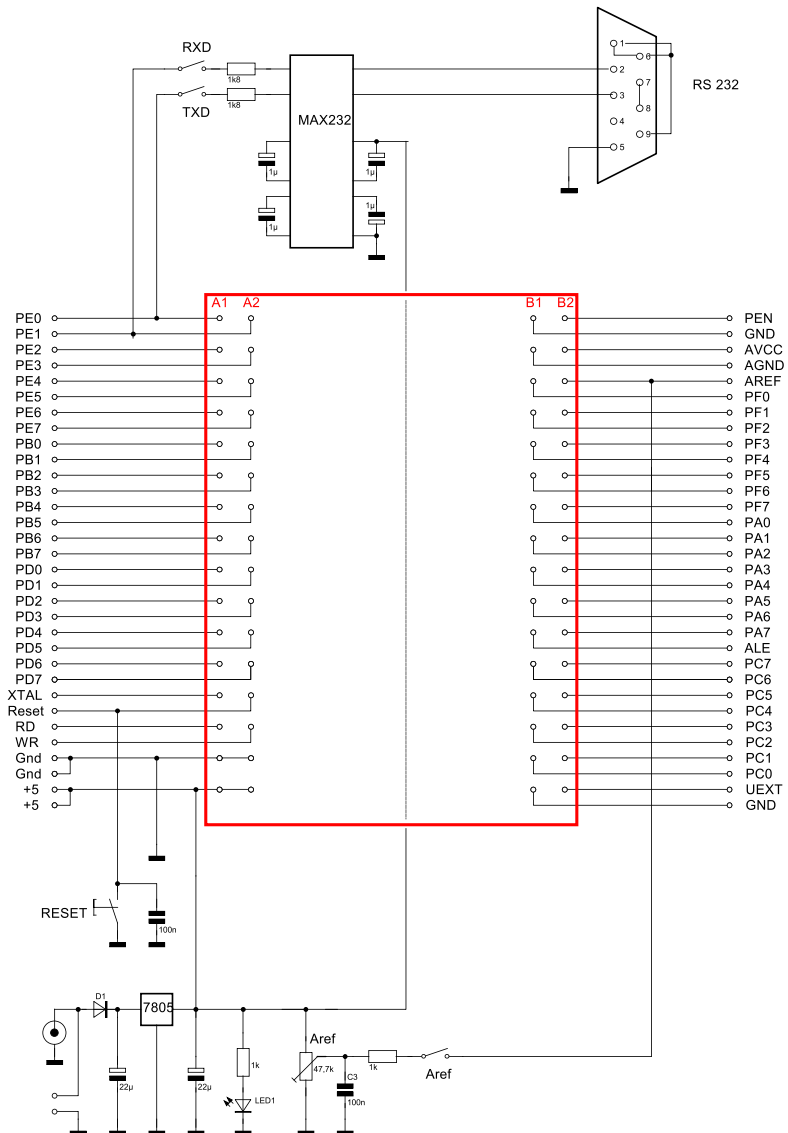


TOP



BUTTON

Evaluation Board / Schematic



TOP and Button View incl. Parts

